SURFACE WATER MONITORING RESULTS

DATE: December 10, 2009 **NPDES PERMIT #** ID-002832-1

TO: US EPA Region 10, IDEQ, NMFS, USFWS

FROM: Formation Capital Corp., U.S.

SUBJECT: Summer Quarter 2009, Quarterly Surface Water Monitoring

In accordance with the permit requirements of the National Pollutant Discharge Elimination System (NPDES) Permit No. ID-002832-1, samples were collected in the summer quarter 2009 at Formation Capital Corporation's (Formation) Idaho Cobalt Project (ICP). No discharge has occurred at Outfall 001, because the outfall has not been constructed.

SURFACE WATER REVIEW

Water Quality

Water quality grab samples were collected from three surface water sampling sites required for NPDES reporting in June and August 2009. As required by the permit, results of all surface water monitoring of WQ-24a and WQ-28 as part of routine monitoring are provided in Tables 1 and 2. Although the permit requires only flow and hardness to be reported for WQ-30, additional field and laboratory analytical data are also provided in Tables 1 and 2. Laboratory analytical reports are available on request.

WQ-24a

Concentrations of several parameters were reported above their respective maximum MDLs as specified in the permit during summer sampling. These parameters are total recoverable aluminum, dissolved copper, total recoverable iron, and total suspended solids. The field conductivity and laboratory conductivity measurements had relative percent differences greater than twenty percent during the June sampling event. Additionally, the

sample collected during the June sampling event had dissolved selenium and cadmium concentrations above their respective reported total recoverable concentrations.

WQ-28

Concentrations of several parameters were reported above their respective maximum MDLs as specified in the permit. These parameters are total recoverable aluminum, dissolved copper, total recoverable iron, and total suspended solids.

Flow was not recorded for this sampling site in June 2009 because the water was flowing too high and the site conditions were too dangerous to have personnel collect flow measurements. The flow meter was not functioning properly during the August 2009 sampling and flow was not recorded.

WQ-30

WQ-30 was added to the monitoring plan to provide data downstream of NPDES Outfall 001, this location meets the requirements described in Section I.D.1.(b) of the permit. Data from this location and WQ-24a, which is upstream of the outfall, will document any potential changes in water quality from the NPDES discharge.

Measured dissolved cadmium and copper concentrations and total recoverable aluminum and iron concentrations were reported above their respective maximum MDLs as specified in the permit. Total Recoverable selenium and total suspended solids concentrations were reported at the maximum MDLs for these constituents. The field conductivity and laboratory conductivity measurements had relative percent differences greater than twenty percent during the June sampling event.

TABLES

Table 1 Field and Analytical Results

Analyte	MDL[1]	Laboratory Method	Laboratory MDL[2]	Sampling Location WQ-24a 6/8/2009	WQ-28 6/10/2009	WQ-30 6/8/2009
Flow, field (gpm)		--		62836		65978
Arsenic, dissolved	2	EPA 200.7/200.8	6 / 0.02	<10	<10	<10
Cadmium, dissolved	0.1	EPA 200.7/200.8	0.8 / 0.004	1.9	<0.1	0.7
Cobalt, total recoverable	2	EPA 200.7/200.8	5 / 0.04	<6	<6	<6
Copper, dissolved	1	EPA 200.7/200.8	0.9 / 0.03	<1	4	3
Lead, dissolved	0.1	EPA 200.7/200.8	10 / 0.003	<1	<1	<1
Mercury, total recoverable	0.0002	EPA 245.7	0.0009	<0.2	<0.2	<0.2
Nickel, dissolved	5	EPA 200.7/200.8	2 / 0.05	<1	<1	<1
Selenium, total recoverable	2	EPA 200.7/200.8	3 / 0.09	<1	<1	2
Silver, dissolved	0.2	EPA 200.7/200.8	2 / 0.009	<0.1	<0.1	<0.1
Thallium, total recoverable	0.3	EPA 200.7/200.8	50 / 0.02	<5	<5	<5
Zinc, dissolved	10	EPA 200.7/200.8	2 / 0.1	<5	<5	<5
Ammonia-N	1	EPA 350.1	0.02	<50	<50	<50
NO3+NO2 As N			3	<50	<50	<50
Sulfate (mg/L)	20	EPA 300.0	0.01	2000	3000	2000
Total Suspended Solids (mg/L)	5	APHA 2540D	1	6000	7000	5000
pH - field (Std. Units)				7.57	7.63	7.46
Dissolved Oxygen, Field (mg/L)				11470	11680	11340
Temperature (Degrees Celsius)				5.18	6.06	5.07
Iron, total recoverable	30	EPA 200.7/200.8	8 / 2	180	220	160
Aluminum, total recoverable	20	EPA 200.7/200.8	40 / 2	250	260	220
Hardness (mg/L)				16	18	16
Chloride (mg/L)	1	EPA 300.0	0.02	<0.5	<0.5	<0.5
Conductivity, field (mS/m)				3	4.2	3
Total Dissolved Solids (mg/L)				31	31	26
Other Monitored Parameters						
Acidity, T (mg/L)				<4	<4	<4
Silver, total recoverable				<0.1	<0.1	<0.1
Aluminum, dissolved				<80	<80	<80
Alkalinity, T (mg/L)				16	20	16
Arsenic, total recoverable				<10	<10	<10
Calcium, dissolved				5490	5990	5440
Cadmium, total recoverable				0.8	<0.1	1.2
Cobalt, dissolved				<6	<6	<6
Copper, total recoverable				5	10	7
Conductivity (mS/m)				4.2	4.7	4.2
Fluoride				610	620	640
Iron, dissolved				30	40	<30
Mercury, dissolved				<0.2	<0.2	<0.2
Potassium, dissolved				<1000	<1000	<1000
Magnesium, dissolved				600	600	600
Manganese, dissolved				<5	<5	<5
Manganese, total recoverable				5	<5	<5
Sodium, dissolved				2000	2000	2000
Nickel, total recoverable				<1	<1	<1
Lead, total recoverable				<1	<1	<1
pH (Std. Units)				7.41	7.41	7.34
Selenium, dissolved				2	<1	2
Turbidity - field (NTU)				2.13	2.19	1.84
Zinc, total recoverable				<5	<5	<5

all units are ug/L unless otherwise noted

[1] Maximum Method Detection Limit as specified in the permit

[2] Maximum Method Detection Limit for Energy Laboratory may change yearly with certification.

Table 2 Field and Analytical Results

Analyte	MDL[1]	Laboratory Method	Laboratory MDL[2]	Sampling Location: WQ-24a 8/3/2009	Sampling Location: WQ-28 8/5/2009	Sampling Location: WQ-30 8/3/2009
Flow, field (gpm)		--		7630		8079
Arsenic, dissolved	2	EPA 200.7/200.8	6 / 0.02	<10	<10	<10
Cadmium, dissolved	0.1	EPA 200.7/200.8	0.8 / 0.004	<0.1	<0.1	<0.1
Cobalt, total recoverable	2	EPA 200.7/200.8	5 / 0.04	<6	<6	<6
Copper, dissolved	1	EPA 200.7/200.8	0.9 / 0.03	4	6	5
Lead, dissolved	0.1	EPA 200.7/200.8	10 / 0.003	<1	<1	<1
Mercury, total recoverable	0.0002	EPA 245.7	0.0009	<0.2	<0.2	<0.2
Nickel, dissolved	5	EPA 200.7/200.8	2 / 0.05	<1	<1	<1
Selenium, total recoverable	2	EPA 200.7/200.8	3 / 0.09	<1	<1	<1
Silver, dissolved	0.2	EPA 200.7/200.8	2 / 0.009	<0.1	<0.1	<0.1
Thallium, total recoverable	0.3	EPA 200.7/200.8	50 / 0.02	<5	<5	<5
Zinc, dissolved	10	EPA 200.7/200.8	2 / 0.1	<5	<5	<5
Ammonia-N	1	EPA 350.1	0.02	<50	<50	<50
NO3+NO2 As N			3	<50	<50	<50
Sulfate (mg/L)	20	EPA 300.0	0.01	5	4	5
Total Suspended Solids (mg/L)	5	APHA 2540D	1	<3	<3	<3
pH - field (Std. Units)				7.95	7.74	7.79
Dissolved Oxygen, Field (mg/L)				9.56	8.95	9.39
Temperature (Degrees Celsius)				13.7	9.72	13.19
Iron, total recoverable	30	EPA 200.7/200.8	8 / 2	30	<30	<30
Aluminum, total recoverable	20	EPA 200.7/200.8	40 / 2	<80	<80	<80
Hardness (mg/L)				36	38	36
Chloride (mg/L)	1	EPA 300.0	0.02	700	800	700
Conductivity, field (mS/m)				9	9.6	9
Total Dissolved Solids (mg/L)				44	53	52
Other Monitored Parameters						
Acidity, T (mg/L)				<4	<4	<4
Silver, total recoverable				<0.1	<0.1	<0.1
Aluminum, dissolved				<80	<80	<80
Alkalinity, T (mg/L)				38	41	38
Arsenic, total recoverable				<10	<10	<10
Calcium, dissolved				12400	12700	12200
Cadmium, total recoverable				<0.1	<0.1	<0.1
Cobalt, dissolved				<6	<6	<6
Copper, total recoverable				6	7	7
Conductivity (mS/m)				9.2	9.9	9.5
Fluoride				780		770
Iron, dissolved				30	<30	<30
Mercury, dissolved				<0.2	<0.2	<0.2
Potassium, dissolved				1000	1000	1000
Magnesium, dissolved				1300	1500	1400
Manganese, dissolved				<5	<5	<5
Manganese, total recoverable				<5	<5	<5
Sodium, dissolved				3000	4000	3000
Nickel, total recoverable				<1	<1	<1
Lead, total recoverable				<1	<1	<1
pH (Std. Units)				7.8	7.9	7.73
Selenium, dissolved				<1	<1	<1
Turbidity - field (NTU)				0.65	0.57	0.34
Zinc, total recoverable				<5	<5	<5

all units are ug/L unless otherwise noted

[1] Maximum Method Detection Limit as specified in the permit

[2] Maximum Method Detection Limit for Energy Laboratory may change yearly with certification.

FIGURE

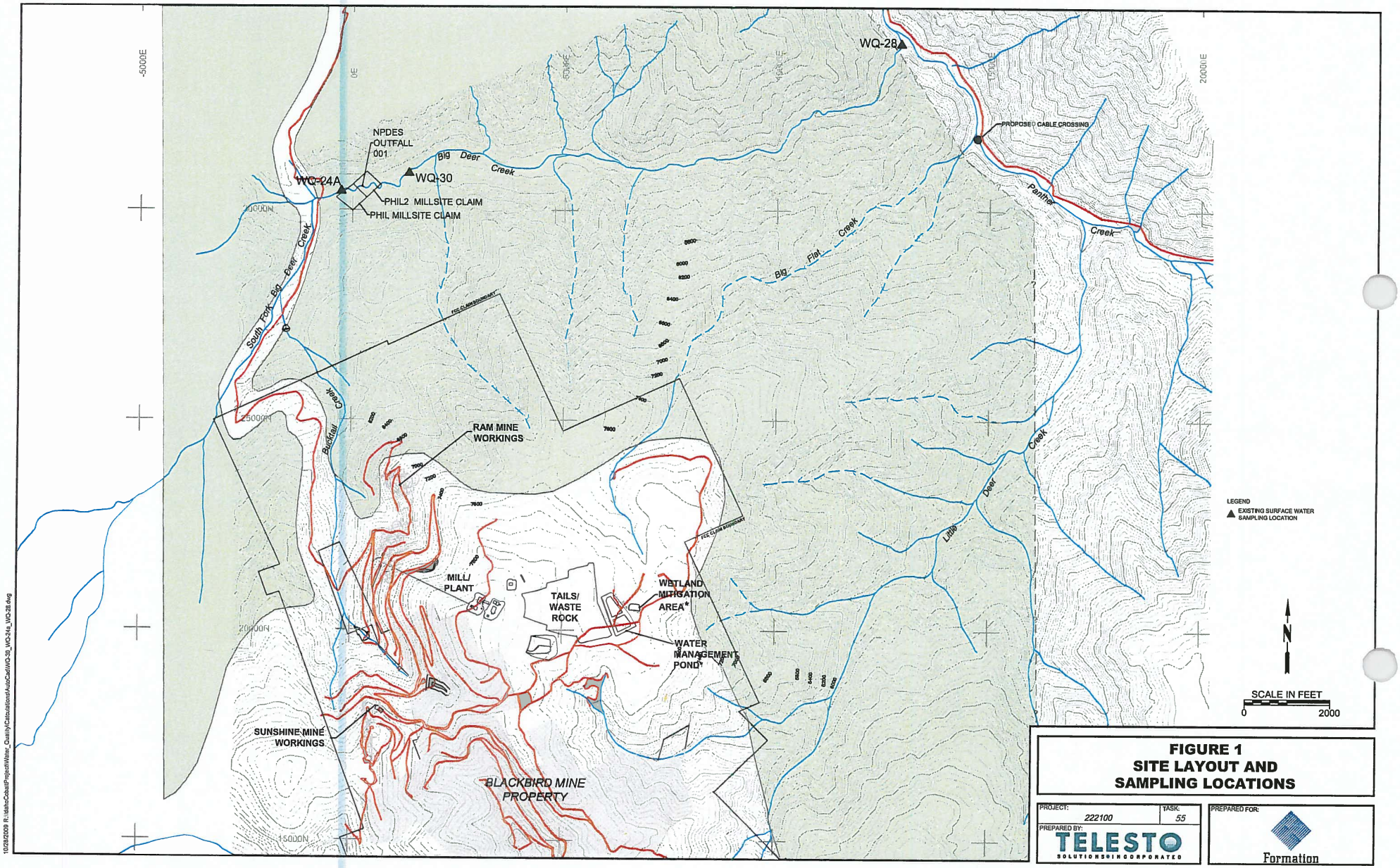

FIGURE 1
SITE LAYOUT AND SAMPLING LOCATIONS

PROJECT:	TASK:
222100	55

PREPARED BY: TELESTO SOLUTIONS INCORPORATED

PREPARED FOR: Formation

10/28/2009 R:\Idaho Cobalt Projects\Water_Qual\MyCalculations\AutoCad\WQ-30_WQ-24a_WQ-28.dwg